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Philadelphia College of Osteopathic Medicine, clabbott@hacc.edu

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Philadelphia College of Osteopathic Medicine

Department of Psychology

SOCIAL SUPPORT AS A MODERATOR BETWEEN
HEALTH STATUS AND SELF-ESTEEM, PSYCHOSOCIAL STRESS, AND MOOD
IN OLD ORDER AMISH WOMEN

By Christina L. Abbott

Submitted in Partial Fulfillment of the Requirements of the Degree of

Doctor of Psychology

September 2009

PHILADELPHIA COLLEGE OF OSTEOPATHIC MEDICINE
DEPARTMENT OF PSYCHOLOGY

Dissertation Approval

This is to certify that the thesis presented to us by Christine L. Abbott
on the 27th day of August, 2009, in partial fulfillment of the
requirements for the degree of Doctor of Psychology, has been examined and is
acceptable in both scholarship and literary quality.

Committee Members' Signatures:

Donald Masey, Psy.D., Chairperson

Virginia Salzer, Ph.D.

Karen Lindgren, Ph.D.

Robert A. DiTomasso, Ph.D., ABPP, Chair, Department of Psychology

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Abstract

The Amish population is growing in Lancaster County, Pennsylvania (Kraybill, 2008) and Amish use of medical and psychological services provided by the outside world is increasingly common (Cates & Graham, 2002; Weyer et al., 2003). Yet, little is known about how Amish women perceive their health status or how these variables interact in this population. This study revealed an identifiable relationship between health status and psychological functioning in 288 Amish women, ages 18 to 45. As health improves, self-esteem and mood also improve. Of greater importance is the fact that when good social support is available, even Amish women in poor health report high self-esteem.

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Social Support as a Moderator Between Health Status and Self-Esteem, Psychosocial Stress, and Mood in Old Order Amish

Statement of Problem

There are approximately 220,000 Amish people living in twenty-seven states across America and Ontario, Canada (Kraybill, 2008). The largest Amish settlement is located in Holmes County, Ohio. The second largest settlement is located in Lancaster County, Pennsylvania. Lancaster's settlement is the oldest and most densely populated. An estimated 27,000 Amish reside in Lancaster County, half of whom are under the age of 18. Although many non-Amish believe that the Amish population is slowly dying out, this is not the case. In fact, during the past century the Amish population has doubled in size approximately every twenty years. The rapid growth in the Amish population is attributed to their robust birth and retention rates (Kraybill, 2008). The average Amish family has seven children. The number of adults who leave the Amish community or youth who choose not to be baptized is less than 10 percent (Kraybill, 2008). The life expectancy for the Amish is 70.7 (\pm 15.6) years (Mitchell et al., 2001); unlike men and women in the general population, Amish men live as long as Amish women (Miller, 1980).

Amish population growth is also attributed to the community's ability to resist the forces of modernization that threatened their cultural beliefs, yet simultaneously accepting select technology that perpetuates their society. Like many other Amish communities, the Lancaster County Amish shun most modern day conveniences. They use the horse and buggy for transport, do not own televisions, prohibit higher education, and do not use electricity in the home (Ediger, 2005; Hostetler, 1993; Kraybill, 2008).

However, unlike some Amish communities, Lancaster County Amish are permitted to ride in the cars of others, use public telephones, and selectively use diesel generators in workshops and barns (e.g., automatic milking machines).

Although the Amish have constructed a cultural barrier between themselves and the outside world, they are not completely devoid of interaction with that world. In fact, the Amish frequently interact with their non-Amish neighbors. For example when the Amish need medical or psychological services, they must rely on the outside world to provide these services (Hostetler, 1993). The Amish also have frequent commercial interactions with the non-Amish through the sale of goods and services (Kraybill, 2001).

Health status can have a profound effect on psychological functioning in the general population (Carney, 1998; Carney, Freedland, Eisen, Rich, & Jaffe, 1995; Ciechanowski, Katon, & Russo, 2000; Fishbain, 1999; Katon, 2003; DiMatteo, Lepper, & Croghan, 2000). A large body of research also suggests social support moderates the effect of health status on psychological functioning (Cassel, 1976; Cobb, 1976; Cohen & Wills, 1985; Fusilier & Manning, 2005; Uchino, Cacioppo, & Kiecolt-Glaser, 1996; Vandervoort, 1999). Understanding these relationships allows physicians to better address the needs of their patients and to promote a biopsychosocial approach to treatment. However, it is not known if these same relationships exist in the Amish population or how these relationships impact the Amish because few empirical studies on the physical and mental health of the Amish have been conducted. Much of what is published is out-of-date, relies on anecdotal information, or has limited scientific rigor (Thomas, Menon, Ferguson, & Hiermer, 2002).

Purpose of the Study

The purpose of this study is to determine whether or not a relationship exists between health status and psychological functioning, specifically self-esteem, mood, and psychosocial stress, in a subset of the Amish population (Amish women between the ages of 18 and 45), and to determine how social support moderates this relationship. Because the Amish population is expected to grow significantly, efforts to increase cultural competence in relation to this unique group must be made in order to improve service delivery.

Although research indicates that health status is related to psychological functioning in the general population (Carney, 1998; Carney, Freedland, Eisen, Rich, & Jaffe, 1995; Ciechanowski, Katon, & Russo, 2000; DiMatteo, Lepper, & Croghan, 2000; Fishbain, 1999; Katon, 2003), this research has not been extended to the Amish population. There is no evidence that the Amish are significantly healthier than their non-Amish counterparts or are less susceptible to psychological dysfunction (Cassady, Kirschke, Jones, Craig, Bermudez, & Schaffner, 2005; Colbert, 1980; Fuchs, Levinson, Stoddard, Mullet, & Jones, 1990; Miller et al., 2007; Weyer et al., 2003). The area in which the Amish appear to differ is in their strong social networks. According to Kraybill, Nolt & Weaver-Zercher (2007), the typical Amish person has more than 75 first cousins, most of these living within a short distance of each other, who when needed, mobilize to assist family members in crisis. In case of fire, illness or death, community and family members take over daily chores, prepare food, care for young children, and offer prayers and words of comfort. The process appears seamless when such tragedy occurs.

The question is whether or not this social support affects psychological functioning when the Amish are in poor health. Another concern is whether or not the Amish receive the same level of social support for less obvious everyday limitations, such as a health problem, as they do for obvious tragedy. In fact, because Amish culture relies much less on technology and is more agriculturally based, limited physical health may be more damaging to the Amish person. The Amish lifestyle requires robust health; great value is placed on completing a good day's work. According to Hostetler (1993), "the Amish emphasize hard work, and for them, a healthy person is one who has a good appetite, looks physically well, and can do rigorous physical labor. A poor appetite means poor health" (p. 15).

Relevance to Better Understanding the Amish

There is a paucity of empirical research on the associations between physical and psychological functioning in the Amish. Given the rapid growth of this population and its reliance on non-Amish physicians and mental health providers, additional research is needed to understand the Amish view of physical and mental health, including how specific cultural elements, such as its social system, interact on these processes. This study will increase this understanding and may help improve service delivery to this unique population.

Chapter Two: Literature Review

Relevant Constructs

Health Status

In 2005, 133 million Americans were living with at least one chronic condition, a 48% increase from 1987 (National Center for Chronic Disease Prevention and Health Promotion, 2009; Hoffman, Rice, & Sung, 1996). According to Paez, Zhao, and Hwang (2009), the prevalence of self-reported chronic illness is increasing among individuals of all ages. More than 33 million Americans living with at least one chronic illness are between the ages of 20 and 44, and 71 million of these are women. Direct medical costs totaled more than \$1.5 trillion in 2005; this is an increase from \$425 billion in 1990 (CDC, 2009; Hoffman, Rice, & Sung, 1996). Indirect costs are more difficult to calculate if one considers the impact that chronic illness and health status has on psychological functioning.

The World Health Organization (1948) defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”, which suggests that health has at least three elements: physical health, mental health, and a social component. Some researchers believe the definition of health should be restricted to include only physical and mental components. Ware, Brook, Davies, and Lohr (1981) caution against the inclusion of social functioning; they believe that it “extends the concept of health beyond the individual to include the quantity and quality of social contacts and social resources” (p.621). According to the WHO definition of health, a change in social support (e.g., loss of a loved one or geographical separation from family and friends) implies a change in health status. Ware et al. suggest “a model

of health status that defines social factors, along with other such as life events, as external but related to an individual's health status explains empirical results better than one that includes social factors as an integral component of individual health” (p. 621).

Health status as defined in the Dictionary of Public Health (2007) is “the degree to which a person (or group) can fulfill usually expected roles and functions physically, mentally, emotionally, and socially.” Thus, deviation from the usually expected status suggests the presence of disease or illness. The Amish define health in much the same way. Armer and Radina (2006) found that Amish define health as a) the ability to work hard, b) the importance of being healthy, c) a sense of freedom to enjoy life, d) family responsibility, e) physical well-being, and f) spiritual well-being.

In this study, health status is defined and measured using the General Health Short Form-12 Survey (SF-12v2TM) (Ware, Kosinski, & Keller, 1996). The SF-12v2TM is a subjective measure of health-related quality of life, yielding an 8-scale profile of functional health and well-being and two summary measures: the Physical Health Component Summary and the Mental Health Component Summary. An objective measure of health was also collected. Participants were asked, “In the past 5 years, has a doctor or other health care professional told you that you have any of the following health conditions?”; this was followed by a list of 28 medical conditions. The objective health scores were calculated by summing the total number of medical conditions that a participant endorsed.

Social Support

Cobb (1976) defines social support as “the individual belief that one is cared for and loved, esteemed and valued, and belongs to a network of communication and mutual

obligations” (p. 300). The National Cancer Institute (NCI; 2009) defines social support as “a network of family, friends, neighbors, and community members that is available in times of need to give psychological, physical, and financial help.” NCI’s definition is the way in which most lay people would define the term, yet Cobb’s definition highlights an interesting concept. Social support may be more about perception than reality, and the way in which our social network interacts not only with us, but also on us is more important than the actual size of the network.

As illustrated, social support can be conceptualized in many ways. One way to conceptualize social support is the presence and interconnection between social relationships. This is called a structural measure of support (Uchino, Cacioppo, & Kiecolt-Glaser, 1996; Sherbourne & Stewart, 1991)). Structural measures collect information about whether or not one has an identifiable social network, such as being married, number of siblings, etc. A second conceptualization of social support is by means of the function it serves. This is referred to as a functional measure of support. Functional measures of support assess the specific functions that social relationships may provide (Uchino et al., 1996; Sherbourne & Stewart, 1991).

In this study, social support is defined and assessed by using a subset of the Medical Outcomes Study Social Support Survey (MOS-SSS), which includes measures of structural and functional support (Sherbourne & Stewart, 1991). The MOS-SSS measure of functional support includes four dimensions including tangible support, affection, emotional and informational support, and positive social interaction. Sherbourne and Stewart (1991) define tangible support as “the provision of material aid or behavioral assistance,” affectionate support as “involving expressions of love and

affection,” emotional support as “the expression of positive affect, empathetic understanding, and the encouragement of expression of feelings,” informational support as “the offering of advice, information, guidance, or feedback,” and positive social interaction as “the availability of other persons to do fun things with you” (p. 707).

Self-Esteem

Self-esteem is defined “by how much value people place on themselves” (Baumeister, Campbell, Krueger, & Vohs, 2003, p. 2). Rosenberg (1965) describes self-esteem as a favorable or unfavorable attitude toward the self. That is, does one consider himself or herself worthy or unworthy? Thus, “High self-esteem refers to a highly favorable global evaluation of the self. Low self-esteem, by definition, refers to an unfavorable evaluation of the self” (Baumeister et al., 2003, p. 2). As these statements imply, self-esteem is a personal evaluation of the self. It has more to do with perception than reality. This suggests that one’s positive belief about one’s self may contribute more to one’s well-being than one’s actual talents, skills, and attributes. In this study, Rosenberg’s Self-Esteem Scale is used to measure global self-esteem (Rosenberg, 1965).

Relationship Between Health Status and Psychological Functioning

Health Status and Depression

Research shows that individuals with chronic illness have a higher prevalence of depressive disorders; those with depressive disorders spend 50 percent more money in medical costs than individuals with the chronic illness alone (Carney, 1998; Katon, 2003). Research also suggests that individuals with comorbid mood disorders and with medical illness experience enhanced morbidity, a poorer prognosis, and increased mortality from the medical illness. These individuals have more difficulty managing their

illness and are less likely to adhere to treatment regimens (Carney, Freedland, Eisen, Rich, & Jaffe, 1995; Ciechanowski, Katon, & Russo, 2000; DiMatteo, Lepper, & Croghan, 2000).

For example, Carney et al. (1995) found that one-third of patients reported symptoms of depression following a myocardial infarction and that 15 to 20 percent of post myocardial infarction patients met criteria for major depressive disorder. These same researchers also found that cardiac patients with major depression were less likely to adhere to the prophylactic aspirin treatment regimen. Cardiac patients with depression followed the prescribed regimen on fewer days than patients without depression, despite reporting no side effects from the aspirin and having a clear understanding of the importance of taking the medication as prescribed.

Similarly, Ciechanowski et al. (2000) found the severity of depressive symptoms in patients with diabetes to be associated with poor diabetes self-care, lower physical and mental functioning and higher health care costs. Diabetic patients with high depressive symptom severity had more difficulty adhering to dietary recommendations, more interruptions in refilling their oral medications than patients with low depressive symptom severity; they also reported more limitations in their physical and mental functioning. Finally, patients with high depressive symptom severity were significantly more likely to have health care costs related to primary care, emergency department, medical inpatient, mental health, and specialty care than patients with fewer symptoms of depression.

Fishbain (1999) estimates that one-third to one-half of patients with chronic pain have recurrent episodes of major depression. Patients with chronic pain are also prone to

dysthymia, to adjustment disorders with depressed mood, and to substance abuse disorders. Patients with chronic pain and depression report lower pain thresholds and higher subjective pain ratings.

These studies demonstrate the fact that a relationship between depression and health status exists. First, individuals with chronic illnesses have higher prevalence of depressive disorders; those with depressive disorders spend 50 percent more money in medical costs than individuals with the chronic illnesses alone (Carney, 1998; Katon, 2003). Second, individuals with comorbid mood disorders and medical illnesses experience enhanced morbidity, poorer prognoses, and increased mortality from the medical illnesses. Third, individuals with chronic illnesses and depressed mood have more difficulty managing their illnesses and are less likely to adhere to treatment regimens (Carney, Freedland, Eisen, Rich, & Jaffe, 1995; Ciechanowski, Katon, & Russo, 2000; DiMatteo, Lepper, & Croghan, 2000).

Health Status and Self-Esteem

Self-esteem has received a great deal of attention in the literature. Generally, high self-esteem tends to be associated with better outcomes such as occupational, academic, and interpersonal success (Baumeister et al., 2003). Self-esteem is also related to a greater sense of well-being and happiness, and has been found to be a strong predictor of life satisfaction (Diener & Diener, 1995). Low self-esteem is generally associated with poorer outcomes such as depression. It is uncertain whether or not one's level of self-esteem is caused by one's success or failure or one's success or failure is caused by one's level of self-esteem.

The relationship between health status and self-esteem is less clear. Several studies have researched the indirect link between self-esteem and health examining the influence of self-esteem on treatment compliance and various health-related behaviors such as exercise, smoking, and substance use. Fewer studies have examined the direct link between self-esteem and objective health status. However, two studies were found that examined self-esteem and objective health status.

In the first study, Forthofer, Janz, Dodge, and Clark (2001) found that high self-esteem was a better predictor of physical and psychological functioning in women with heart disease than were demographic or clinical factors. The study included 502 men and women over the age of 60 that were being treated for cardiovascular disease. Researchers collected information on stress, self-esteem, and social support at two data collection points, baseline and 12-month follow-up.

Results indicate that self-esteem and stress were better predictors of the maintenance or improvement of health functioning both in men and in women (Forthofer et al., 2001). Higher levels of self-esteem were positively associated with health functioning, but higher levels of stress were negatively associated with health functioning. For women, level of self-esteem significantly increased the likelihood of maintaining or improving their health functioning over the course of 12 months. Women who reported the highest levels of self-esteem were almost five times as likely to maintain or improve their functioning as women who reported the lowest levels of self-esteem.

A second study examining self-esteem and objective health status was conducted by Nirkko, Lauroma, Tuominen, and Vanhala (1982). This study followed 1326 Helsinki

Policeman over a ten-year period in order to examine the relationship between psychological factors and coronary heart disease (CHD). All participants completed the Wartegg drawing test and a personality test. Additional data were collected on a subsample of 121 men.

Based on medical findings collected at baseline, the subsample of 121 men was separated into three groups. Group A consisted of 41 healthy men who were asymptomatic of CHD and at low risk for developing CHD. Group B consisted of 40 men with electrocardiogram (ECG) signs of CHD. Group C consisted of 40 men with both ECG signs of CHD and with symptoms of CHD such as angina and chest pain lasting at least 30 minutes. Additional psychological data were collected on each man. All men were interviewed by the study's investigators, completed personality and self-concept inventories, and several projective tests including the Rorschach and sentence completion tests. Data were collected at three data points, baseline, 5-year follow-up, and 10-year follow-up. Results show that among participants with positive electrocardiograms, lower self-esteem increased the risk of dying from myocardial infarction (Nirkko et al., 1982).

The studies presented here illustrate a relationship between self-esteem and objective health status; high self-esteem is related to better physical health. Low self-esteem increases risk of morbidity. Additional studies have shown a relationship between self-esteem and subjective health status; individuals with high self-esteem tend to rate their overall health better than individuals with low-self-esteem. Glendinning (1998) found that self-esteem was related to better subjective ratings of health but not to reports of health-related behaviors. The study included 1,700 teenagers between the ages of 14 and 16 residing in northern Scotland. The purpose of the study was to understand more fully

the relationships between family life, self-esteem, health, and lifestyle. Qualitative and quantitative data were collected on these topics.

Participants with low self-esteem were more likely to report poorer subjective health and depressed mood than were participants with high self-esteem. Low-self esteem was also associated with higher levels of self-reported somatic and affective symptoms. These associations were more prevalent in women than in men, but there was no difference found based on age. Researchers found no relationship between self-esteem and health-related behaviors such as smoking, drinking, drug use, or physical exercise (Glendinning, 1998).

Taken together, these studies suggest self-esteem is associated with health status and physical functioning. Generally, high self-esteem is associated with better outcomes (Baumeister et al., 2003), higher subjective health evaluations (Glendinning, 1998), and a greater sense of well-being, happiness, and life satisfaction (Diener & Diener, 1995). Self-esteem is also highly predictive of physical functioning (Forthofer et al., 2001). Low self-esteem is generally associated with poor self-rated health, depressed mood, and high levels of self-reported somatic and affective symptoms (Glendinning, 1998).

Health Status and Psychosocial Stress

Research exists examining the relationship between stress and health, much of which investigates the impact of long-term stress on the body because of the prolonged activation of the sympathetic nervous system (Tosevski & Milovancevic, 2006). This body of research has fueled the development of the field of Psychoneuroimmunology (PNI). PNI is the discipline that brings together knowledge from multiple fields of study such as endocrinology, immunology, psychology, and neurology. It is the study of how

all of these mechanisms and bodily functions interact to produce states of health and disease. As with depression, stress impacts health in multiple ways.

One body of research suggests that stress can exacerbate existing medical conditions. Buljevac et al. (2003) found that patients with multiple sclerosis, who experience at least one stressful event during a four-week period, double their risks for exacerbations. This study included 73 patients, aged 15 to 55, diagnosed with multiple sclerosis with a relapsing-remitting course. Patients were monitored from July 1997 to December 1999. Patients kept weekly diaries in which they logged all the stressful events they experienced. Patients were scheduled for routine visits at the outpatient clinic every eight weeks. During these regular visits, patients were given a full neurological examination and their diaries were collected. If patients reported an infection or exacerbation of symptoms, an additional visit was scheduled within three days of onset of symptoms and was followed with a control visit three weeks later.

Over the course of the study, patients reported 505 stressful life events, ranging from illness or problems with close family members to financial problems to stress that was related to holidays. More than three of four patients experienced at least one exacerbation, and nearly the same number experienced at least one infection.

Similar results were obtained by researchers studying the impact of severe stressful events on physical functioning and health utilization in HIV-infected men and women. In this study, stress did not impact the disease processes itself, but rather the individual's ability to cope with and manage the illness. Leserman et al. (2005) found that patients with more lifetime trauma and more stressful events reported more bodily pain and poorer physical, role, and cognitive functioning. This study included 611 HIV-

infected men and women. All participants were English-speaking and cognitively intact as measured by the Short-Portable Mental Status Questionnaire. Participant information was collected through extensive interviews. Data collected included a measure of lifetime sexual and physical abuse, the Childhood Trauma Questionnaire, the Life Events Survey, the PTSD Checklist, the Brief Symptom Inventory, and several subscales from the Rand 36-item Health Survey. The interview also investigated the number of days on which participants spent more than one-half the day in bed because of illness or injury and also requested information about health care utilization during the preceding 9 months.

Researchers found a positive relationship between previous stress and poor physical functioning (Leserman et al., 2005). The greater stress that one experienced the more highly impaired their physical functioning was likely to be. Researchers also found that trauma and stress continued to impact health-related variables when controlling for HIV disease-specific measures such as CD4 and viral load. This suggests that the negative impact of stress on functional health seen in this population may have been the result of factors other than the disease state itself.

DeLongis, Folkman, & Lazarus (1988) studied the relationship between daily stress and the occurrence both of concurrent and of subsequent health problems. This study included 75 married couples. To be included, the wife had to be between the ages 35 and 45; there had to be at least one child living in the home; the household income had to be above \$18,000; both the husband and the wife had to have at least an eighth grade education; they had to be white, and had to be either of Protestant or of Catholic faiths. Participants completed a series of interviews and questionnaires once a month for 6 months. The study included measures of social support, self-esteem, beliefs, values and

commitments, life stress, health, and psychological well-being. Participants also completed 20 daily assessments of stress and illness.

These researchers found that daily hassles were generally associated with a decline in health and mood (DeLongis et al., 1998). Researchers also found self-esteem and emotional support to be related to stress, health, and mood. Participants with low self-esteem and poor emotional support were more likely to experience increased physical symptoms and depressed mood when experiencing stress than were participants with high self-esteem and strong emotional support.

In 2005, Golden-Kreutz et al. explored the relationship between stress and quality of life in breast cancer patients. The purpose of the study was to determine whether or not stress at initial diagnosis and surgery would predict later reports of quality of life. This study included 112 women diagnosed with Stage II or III breast cancer. Measures included the Impact of Events Scale, the Perceived Stress Scale, the Medical Outcomes Study Short-Form, and a life-event scale. Data were collected at three points. The first data collection took place at the time of initial diagnosis and surgery but prior to adjuvant therapy. The second and third data collection took place at 4 months during adjuvant therapy, and at 12 months after adjuvant therapy was completed.

Researchers found a negative relationship between initial stress and concurrent quality of life (Golden-Kreutz, 2005). Initial stress was also predictive of later psychological functioning. Women with higher levels of stress at the time of diagnosis and surgery were more likely to report reduced quality of life during the same time period. These women also reported reduced quality of life during and after adjuvant therapy.

Overall, these studies suggest that stress impacts physical health in multiple ways. First, stress can worsen existing medical conditions (Buljevac et al., 2003; Leserman et al., 2005). Second, stress can compromise the immune system, increasing one's susceptibility to illness and infection (DeLongis et al., 1998; Tosevski & Milovancevic, 2006). Third, stress can reduce quality of life and increase physical impairment (Golden-Kreutz, 2005). One could also argue the dual directional nature of the stress and health relationship. That is, stress negatively impacts health, and poor health creates additional stress.

Role of Social Support in Moderating Psychological Functioning

Acute or chronic stressful experiences such as illness increase one's risk for physical and mental dysfunction, although research suggests that social support can reduce this risk. Individuals with poor social support are more susceptible to illness and psychological dysfunction (DeLongis, Folkman, & Lazarus, 1988). Social support is associated with better immune, endocrine, and cardiovascular functioning, with lower rates of morbidity and mortality (Uchino, Cacioppo, & Kielcolt-Glaser, 1996), and with fewer hospital and doctor visits (Bosworth & Schaie, 1997). Social support is predictive of mood and health-related quality of life (Jenks-Kettmann & Altmaier, 2008; Moskowitz, Maunder, Cohen, McLeod, & MacRae, 2000).

One process by which social support moderates the relationship between stress and psychological and physical functioning is known as the stress-buffering hypothesis. As its name implies, the buffering hypothesis suggests that social support serves as a "buffer" between the potential, negative consequences of a stressor on psychological and physical functioning (Cassel, 1976; Cobb, 1976). Cassel (1976) believed that

developmental transitions and personal stressors increase one's susceptibility to disease and dysfunction, but belonging to a mutually beneficial social network, being valued and cared for, reduced this vulnerability. Cassel held that social support improves one's ability to cope with and adapt to difficult circumstances. Cobb (1976) suggested that clear and consistent feedback from one's social environment lessened the impact of stressful events. Individuals whose networks "provided them with consistent communication of what is expected of them, assistance with tasks, evaluation of their performance, and appropriate rewards" were protected from the negative impacts of stressors (Cohen & Pressman, 2004, p. 780).

The stress-buffering hypothesis states that having a particular resource (e.g., social support) protects a person against the adverse effect of stressful events or experiences (e.g., illness, poor health) (Cohen & Wills, 1985). Thus, a high level of social support acts as a buffer against the negative effects of poor or failing health. According to the buffering hypothesis, an individual with little social support is more susceptible to the adverse outcomes of poor health than an individual with high levels of support. In fact, the hypothesis, stated in another way, suggests that an individual with a high level of support may not react any differently to the presence of stressful events than he or she would in the absence of such event (Cohen & Wills, 1985).

Physical and Mental Health Functioning in the Amish

The Amish define illness "not in terms of symptoms, but by the inability to function in the work role one occupies" (Wiggins, 1983, p. 27). The Amish use modern medicine and health services, although they tend to rely on home remedies and folk medicine as a first resort in treating illness (Hostettler, 1993; Kraybill, 2001). Although

the Amish seek medical attention almost immediately for acute illness or injuries such as stroke or farm accidents, they are less likely to visit a doctor for minor illnesses, chronic conditions, or preventive care (Hostettler, 1993). In fact, they often delay medical attention until their symptoms have worsened (Weyer et al., 2003). Thus they may be more at risk for the psychological dysfunctions often associated with poor health.

Unfortunately, empirical research on the health of the Amish and the prevalence of chronic illness in this population is limited and out-dated (Miller et al., 2007; Thomas, Menon, Ferguson, & Hiermer, 2002), and results within this population vary, depending on methodology (Fuchs, Levinson, Stoddard, Mullet, & Jones, 1990; Miller et al., 2007).

Amish and Physical Health

Research on the Amish consists primarily of archival and genetic studies. The Amish are an ideal resource for genetic studies because of their large family size and well-defined ancestry (Hostettler, 1993; Holder & Warren, 1998; Patton, 2005). The Amish are a genetically isolated population, with a high degree of inbreeding. Marrying outside of the faith is strictly forbidden. Community genealogy records are well maintained. Several databases exist that allow researchers to identify the genealogical link between two individuals for over 200-300 years (Holder & Warren, 1998). In addition, the Amish lifestyle has changed little over the past 250 years (Sorkin, Post, Pollin, Connell, Mitchell, & Shuldiner, 2005) and confounding variables such as alcohol, tobacco, and drug use are nearly absent in this population (Hostettler, 1993; Levinson, Fuchs, Stoddard, Jones, & Mullet, 1989).

Genetic studies among the Amish have included genetic determinants of obesity (Hsueh et al., 2009), the prevalence of Alzheimer's disease (Holder & Warren, 1998),

and the heritability of life span (Mitchell et al., 2001; Sorkin et al., 2005). Studies with the Old Order Amish of Lancaster County, Pennsylvania has led to the identification of two common biochemical disorders, the maple syrup urine disease (MUSD) and glutaric aciduria type 1 (GAD) (Hostettler, 1993; Patton, 2005).

The very factors that make the Amish valuable for genetic studies also make them difficult to gain access to this population for empirical studies. Only two systematic, population-based studies of the Amish were identified. The first study was conducted with a representative sample of 400 Amish and 773 non-Amish adults residing in Holmes County, Ohio (Fuchs et al., 1990; Levinson et al., 1989). The instrument used in this study was the Behavioral Risk Factor Surveillance Survey (BRFSS), which measured a variety of behavioral and health risks. The survey had a 100% response rate among Amish participants.

Data show that Amish are less likely to use tobacco or consume alcohol than are non-Amish (Fuchs et al., 1990). In fact, no Amish woman reported current or past use of tobacco and only 1.7% of Amish women reported having ever consumed alcohol. The Amish are significantly less likely than non-Amish to have been diagnosed with hypertension (Levinson et al., 1989). Overall obesity rates (120% or more of ideal weight) among Amish men and non-Amish men were comparable. However, prevalence of obesity in Amish women was significantly higher than non-Amish women.

The second study was conducted with 288 Amish women and 2,002 non-Amish women, ages 18 to 45, residing in Lancaster County, Pennsylvania (Miller et al., 2007). This study used a variety of measures to assess physical and mental health risk factors associated with adverse pregnancy outcomes. Data reveal that Amish women have lower

body mass index scores than non-Amish women, and that they take fewer medications. Amish and non-Amish women rate their subjective health nearly the same, despite Amish women reporting lower rates of physician-diagnosed hypertension, high cholesterol, heart disease, chronic lung disease, obesity, cancer, and arthritis than non-Amish women. Amish women, however, report higher rates of anemia, thyroid dysfunction, blood clots, and pregnancies than non-Amish women.

Overall, these studies suggest that the Amish differ from the non-Amish in objective health status. The Amish report fewer physician-diagnosed chronic illnesses and infections, (e.g., hypertension, heart disease, high cholesterol, cancer, lung disease) than the non-Amish. Additional studies have also shown a lower prevalence of Alzheimer's disease (Holder & Warren, 1998) and lung cancer (Miller, 1983) among the Amish. Despite the objective evidence that the Amish may be healthier than their non-Amish counterparts, Amish women rate their subjective health nearly the same as non-Amish women. The Amish's tendency to define illness in terms of functional limitations rather than the presence or absence of symptoms may account for the apparent incongruity between objective and subjective health status among the Amish. The discrepancy may also occur because the Amish are less likely to have regular health care, and thus less likely to receive formal diagnosis for medical issues.

Amish and Mental Health

Mental illness is present in the Amish. In fact, there are at least two Mennonite-operated mental hospitals located in the Eastern United States: Brook Lane Hospital in Maryland and Philhaven Hospital in Pennsylvania (Hostettler, 1993). Philhaven Hospital, in fact, has a residential facility built and financed by the Amish for the Amish, called

Green Pastures. According to Colbert (1980), “Emotional problems usually are caused by a feeling of not being able to live up to the cultural expectations of the community, or not finding fulfillment within the Amish way of life” (p. 13). The Amish approach mental illness as they do physical illness. When an Amish person suffers from mental illness, he or she is encouraged to seek help.

The most comprehensive study of Amish mental health took place from 1976 to 1980 (Egeland & Hostettler, 1983). The purpose of the study was to examine the prevalence of manic-depressive illnesses among the Amish and to identify possible genetic components of the illness. The Amish were not selected because they were more susceptible to mental disorders, but because they are an ideal population for genetic study. The study included a survey of all Amish people admitted to the psychiatric facilities serving the Amish from 50 church districts in Lancaster County, Pennsylvania; it also included a community-based epidemiological survey. Researchers identified 112 active cases of mental illness. Using medical and psychiatric records, when available and using structured interviews employing the Schedule for Affective Disorders and Schizophrenia-Lifetime Version (SADS-L), the researchers classified the 112 cases into 10 disorders. Major depression and bipolar disorder accounted for 37% and 34% of the cases, respectively. The remaining cases were diagnosed as follows: minor depression (8%), schizoaffective disorder (6%), personality disorder (6%), schizophrenia (4%), atypical psychosis (2%), paranoid disorder (2%), hypomanic disorder (1%), and pedophilia (1%). In total, the prevalence of affective disorders among the Amish was estimated at 1.2%, less than in the general population (Egeland & Hostettler, 1983). Results showed no gender differences in the distribution of major affective disorders. Of

the 38 active cases of bipolar disorder, 58% were men and 42% were women. Of the 41 active cases of major depression, 49% were men and 51% were female.

Researchers cautioned that disorders, such as personality disorder, minor depression, and anxiety may be underreported in the study. According to Egeland and Hostettler (1983), “A major reason is the high tolerance by the Amish for peculiar behavior and minor ailments as long as the person continues to function in daily activities” (p. 60).

More recent studies estimating the prevalence of depression among the Amish reveal that Amish men and non-Amish men experience depression at equal rates, 26% to 24% respectively (Fuchs et al., 1990). Depression rates among Amish women vary, depending on the study. In one study, Amish women reported higher rates of depression than non-Amish women, 47% to 38% respectively (Fuchs et al., 1990). In a second study, Amish women rated their mental health higher than the general population (Miller et al., 2007). Only 2.5% of the Amish women taking part in this study scored at high risk for psychological distress, especially depression, compared with 22% of the general population. Variations in reporting rates may be a function of methodological differences. The Fuchs et al. (1990) sample included Amish adults residing in Holmes County, Ohio. Participants were asked two questions reflecting psychological well-being from the BRFSS. In contrast, Miller et al. (2007) interviewed Amish women between the ages of 18 and 45 residing in Lancaster County, Pennsylvania. The Lancaster survey used the General Health Short Form-12 Survey and six items from the Center for Epidemiologic Studies Depression Scale. Thus the studies differed significantly in population and in measures.

Conversion disorder has also been documented in the Amish population. In 2005, researchers reported a case series in which five adolescent girls between the ages of 9 and 13 residing within a 2.5 mile radius within the Amish community met the *Diagnostic and Statistical Manual of Mental Disorders, 4th. Edition* (DSM-IV) diagnostic criteria for conversion disorder (Cassady, Kirschke, Jones, Craig, Bermudez, & Schaffner, 2005). All five girls experienced lower extremity weakness, anorexia, and weight loss. Four of the five girls experienced neck weakness. Researchers learned there was an 18-month period of significant psychosocial stress in the community. This Old Order Amish community was divided regarding the ability of Amish men to charge for work performed outside of the community. Approximately 20% of families living in this community relocated and 10% were shunned as a result of this conflict. Although none of the affected girls' families was shunned, researchers suspected that the somatic symptoms experienced by the girls were manifestations of stress.

Overall, the Amish appear to be as prone to mental illness as the general population. Cases of affective disorders, personality disorders, somatoform disorders, and psychotic disorders are well documented in this population. The difference between Amish and non-Amish when it comes to mental illness is their approach to and acceptance of those with mental illness (Egeland & Hostettler, 1983). According to Hostettler (1993), "In Amish society, sickness is a socially approved form of deviation" (p. 323). For an Amish person experiencing psychological difficulties, seeking professional help is a positive thing, especially if the health professional helps the person feel better.

Social Support Among the Amish

The structure of the Amish society cultivates strong social networks (Armer & Radina, 2006; Hostettler, 1993; Kraybill, 2001; Kraybill, Nolt & Weaver-Zercher, 2007; Miller et al., 2007). Their impressive system of support was on display after the fatal shooting at the Amish's Nickel Mines Schoolhouse on October 3, 2006. Family, friends, and neighbors gathered to support the families, seamlessly taking over their daily household and barn chores, fixing meals, setting up the houses in order to receive visitors, and offering prayers and words of comfort (Kraybill et al., 2007). Neighbors built the wooden caskets, dug the graves, and arranged transport to the burial sites (Smoyak, 2006). According to Smoyak (2006), "Death is within the family, with a supporting community always present" (p. 7).

Despite substantial anecdotal evidence regarding robust social support levels among the Amish, few empirical studies exist. Armer & Radina (2006) interviewed 87 Old Order Amish adults, ages 18 to 78, using the Perceived Social Support-Family (PSS-Fa) and -Friends (PSS-Fr) Scale. Participants were recruited from a volunteer health-screening program taking place in their community. After the initial contact, participants were asked to invite family members to participate. Thus the recruitment was conducted through snowball sampling and the resulting sample was one of convenience.

Results indicate that levels of perceived social support among the Amish did not differ across generations or by gender (Armer & Radina, 2006). All participants reported high levels of social support, receiving slightly higher scores on the PSS-Fa scale than on the PSS-Fr scale. Support ranged from younger siblings assisting older siblings in caring for their newborn children or in milking chores, to adult children caring for their elderly

parents. No efforts were made in this study to determine if perceived support was related to health or to compare levels of perceived social support of Amish with their non-Amish counterparts.

Miller et al (2007) found higher levels of social support among Amish women than among non-Amish women. Amish women, on average, have 12 close friends and relatives to whom they can turn for support. Non-Amish women, on average, have 7 people to whom they can turn for support. Amish women also reported levels of functional support (e.g., tangible support, emotional support, positive interaction, and affective support) that were significantly higher than non-Amish women. Amish women are more likely than non-Amish women to have someone to take them to the doctor (94% and 86%, respectively), someone to help with daily chores (92% and 68%, respectively), someone in whom to confide (94% and 88%, respectively), someone with whom to share private worries and fears (92% to 84%, respectively), someone with whom to get together for relaxation (83% and 76%, respectively), someone with whom to do something enjoyable (92% and 83%, respectively), someone who shows them love and affection (98% and 91%, respectively), and someone to love them and make them feel wanted (98% and 87%, respectively). In this study, no efforts were made to determine if level of support was related to health or psychological functioning.

Few would argue that the Amish appear to have significant amounts of social support, although only a single study has confirmed that this support is higher than in the general population (Miller et al., 2007). The question is whether or not this social support affects psychological functioning, especially for those in poor health. Research among the general population suggests that social support plays an important role in

psychological functioning, but no empirical studies have tested this hypothesis within the Amish population.

Chapter Three: Hypotheses

Hypotheses/Research Questions

This study will answer two questions: a) Is there a relationship between health status and psychological functioning in Old Order Amish women? ; b) If there is a relationship, does social support mediate this relationship? Specifically, this study questions whether or not self-esteem, psychosocial stress, and mood are related to health status in Old Order Amish women and whether or not social support alters these relationships.

Statement of Hypotheses

Given the research in other populations, it is hypothesized that health status will be positively correlated with self-esteem and mood, and negatively correlated with psychosocial stress. That is, Amish women in good health will report higher levels of self-esteem, a more positive mood, and fewer psychosocial stressors in comparison with those in poor health.

Hypothesis 1. As in the general population, health status and self-esteem are positively correlated in Old Order Amish women. Amish women in better health will report higher self-esteem in comparison with those whose health is not as good.

The rationale for this hypothesis is that, generally, high self-esteem is associated with better outcomes (Baumeister et al., 2003) and a greater sense of well-being, happiness, and life satisfaction (Diener & Diener, 1995). Self-esteem is a strong predictor of improved health functioning (Forthofer et al., 2001). Individuals with high self-esteem also tend to rate their overall health better than individuals with low self-esteem (Glendinning, 1998). Low self-esteem is generally associated with poor self-rated health,

depressed mood, and high levels of self-reported somatic and affective symptoms (Glendinning, 1998).

Hypothesis 2. As in the general population, health status and mood will be positively correlated in Old Order Amish women. Amish women in better health will report a more positive mood in comparison with those whose health is not as good.

Justification for this hypothesis is that, generally, individuals with chronic illness have a higher prevalence of depressive disorders; those with depressive disorders spend 50 percent more money in medical costs than individuals with the chronic illness alone (Carney, 1998; Katon, 2003). Individuals with comorbid mood disorders and medical illness experience enhanced morbidity, a poorer prognosis, and increased mortality from the medical illness. These individuals have more difficulty in managing their illnesses and are less likely to adhere to treatment regimens (Carney, Freedland, Eisen, Rich, & Jaffe, 1995; Ciechanowski, Katon, & Russo, 2000; DiMatteo, Lepper, & Croghan, 2000).

Hypothesis 3. As in the general population, health status and psychosocial stress will be negatively correlated in Old Amish women. Amish women in better health will report lower psychosocial stress in comparison with those whose health is not as good.

The rationale for this hypothesis is that, generally, stress impacts physical health in multiple ways. First, stress can worsen existing medical conditions (Buljevac et al., 2003; Leserman et al., 2005). Second, stress can compromise the immune system, increasing one's susceptibility to illness and infection (DeLongis et al., 1998; Tosevski & Milovancevic, 2006). Third, stress can reduce quality of life and increase physical impairment (Golden-Kreutz, 2005).

Hypothesis 4. Unlike the general population, health status and self-esteem will be

negatively correlated in Old Order Amish women. Amish women in better health will report lower self-esteem in comparison with those whose health is not as good.

Hypothesis 4 is the inverse of Hypothesis 1. Hypothesis 1 was reversed because culture seems to exert some influence on the concept of self-esteem. Research suggests that individuals who reside in collectivist societies report lower levels of self-esteem than individuals who reside in individualist societies. Diener and Diener (1995) found that the relationship between self-esteem and life satisfaction differed between individualistic societies and collectivistic societies. The relationship between these variables was stronger in individualistic societies, in which people focus on their own personal attributes. In individualist societies, feeling good about oneself is an indication of mental adjustment. The Amish culture promotes collectivism. Children are taught at a very young age to “hold others in higher esteem than themselves” (Kraybill, 2008, p. 13). Accordingly, one would expect individuals residing in collectivist cultures to report lower levels of self-esteem. Diener and Diener (1995) state, “In cultures in which the collective is stressed, feeling good about oneself may be a sign of maladjustment” (p. 653).

A second goal of this study is to determine whether or not social support moderates the relationship between self-esteem, psychosocial stress, mood, and health. It is hypothesized that social support will lessen the negative impact of poor health on self-esteem, psychosocial stress, and mood.

Hypothesis 5. Amish women in poor health, but who have high levels of social support, will report higher self-esteem in comparison with those in poor health with low social support.

Hypothesis 6. Amish women in poor health, but who have high levels of social support, will report a more positive mood in comparison with those in poor health with limited social support.

Hypothesis 7. Amish women who are in poor health, but who have high levels of social support, will report less psychosocial stress in comparison with those in poor health with limited social support.

Justification for Hypotheses 5, 6 and 7 is supported by the stress-buffering hypothesis. According to the buffering hypothesis, high levels of social support protect individuals from the potentially harmful effects of stressful experiences such as illness and life events (Cassel, 1976; Cobb, 1976; Cohen & Wills, 1985). Social support is associated with better immune, endocrine, and cardiovascular functioning and lower rates of morbidity and mortality (Uchino, Cacioppo, & Kielcolt-Glaser, 1996), and fewer hospital and doctor visits (Bosworth & Schale, 1997). In addition, social support is a strong predictor of depression and health-related quality of life (Jenks-Kettmann & Altmaier, 2008; Moskoviz, Maunder, Cohen, McLeod, & MacRae, 2000). Finally, individuals with low levels of social support are more susceptible to illness and psychological dysfunction during stressful times (DeLongis, Folkman, & Lazarus, 1988).

Chapter Four: Methodology

This study uses data from Phase I of the Central Pennsylvania Women's Health Study (CePAWHS), which included household interviews with 288, randomly selected Amish women, ages 18 to 45 years living in Lancaster County, Pennsylvania. The surveys were conducted by the Center for Opinion Research at Franklin & Marshall College between November 2004 and December 2005 (Miller et al., 2007). Amish women who worked for the Clinic for Special Children served as liaisons and advised investigators on the composition of the survey (Yost, Abbott, Harding, & Knittle, 2005).

Design

The study's design is a cross-sectional survey. The cross-sectional design allows comparisons to be made between groups at a particular point in time. The purpose of this study is to determine whether or not a relationship exists between health status and psychological functioning, specifically self-esteem, mood, and psychosocial stress in a subset of the Amish population and to determine how social support moderates this relationship. Because all measures are being taken at the same point in time, it is possible to determine if a relationship exists between these variables, but impossible to determine the directionality of those relationships. That is, it will not be possible to determine whether or not poor health status leads to poor psychological functioning versus whether or not poor psychological functioning leads to poor health status.

The key variables in this study are health status, mood, self-esteem, psychosocial stress, and social support. Participants will be divided into groups based upon their health status and level of social support in order to test Hypotheses 5, 6, and 7.

Participants

Two hundred, eighty-eight Amish women participated in the survey. The women ranged in age from 18–45 years with a median age of 30; 249 (86.5%) were married and 38 were never married (one woman did not respond to this question) (Miller et al., 2007). The average household consisted of 2.3 adults and 3.6 children under the age of 18. Only two women had received a high school diploma, consistent with the Amish culture, and 80 (28%) of the women are employed for pay.

The majority (87%) of women has an identified doctor or health professional and three in four (74%) women have visited their health care providers at least one time during the past year. All of the women attend religious services two or more times a month.

Sampling Method

The sampling frame was generated, using the 2002 Church Directory of Lancaster County Amish (Gallagher & Beiler, 2002). The Church Directory was used because it provided a comprehensive listing of all Amish households in Lancaster County, Pennsylvania. The Directory contains a list of names and addresses, information about household composition, the birthdates of household members and maps detailing the location of Amish households. The Directory yields an estimated 25,900 Amish persons living in Lancaster County; this is slightly higher than other estimates (Kraybill, 2001). The limitations of other possible sample frames made the 2002 Church Directory of the Lancaster County Amish the best available frame. An explanation for using the Church Directory to generate the sampling frame over other possible sources is detailed

elsewhere (Miller et al., 2007). Two additional sources identifying Amish households located in Lancaster County were identified. The first list was developed and maintained by the National Institute of Health (NIH), using self-selected samples. The Lancaster County Planning Commission developed the second list; however, the list was no longer being maintained.

Sample Selection

A total of 1,106 households were randomly selected from the Church Directory. Selected households located outside of the county (400), households without a female between the ages of 18 and 45 (183), or households with incomplete directory information (8) were excluded from the sample. The final sample contained 515 eligible households. In cases in which the selected household contained more than one eligible participant, one woman was randomly selected to take part in the survey (Miller et al., 2007).

Recruitment

At the recommendation of the Amish liaisons, pre-notification letters were not sent to selected participants (Yost et al., 2005). Instead, personal visits were conducted to explain the research, answer questions, dispel concerns, and establish rapport. Participants who agreed to participate gave written consent and were given \$10 as a *thank you* for their time and cooperation. Participants had the option of completing the survey at the time of the initial visit or of scheduling an appointment to complete the survey at a more convenient time. Records indicating how many women completed the survey at the time of the initial visit and how many women scheduled an appointment to complete the survey at a later time were not available.

Response Rate

Contact was made with 501 (97%) (American Association for Public Opinion Research [AAPOR], 2006, contact rate 1) of the 515 eligible Amish households. The survey response rate was 61% (AAPOR response rate 1); the cooperation rate was 63% (AAPOR cooperation rate 1), and the refusal rate was 34% (AAPOR refusal rate 1). A total of 159 households refused participation; 22 were household level refusals and 137 were known-respondent refusals.

Measures

Functional Health Status. Overall health status was measured using the General Health Short Form-12 Survey (SF-12v2™), an abbreviated version of the SF-36 (Ware, Kosinski, Turner-Bowker, & Gandek, 2005) (see Appendix A). This measure includes 12 questions about health and functioning during the previous 4 weeks. The SF-12v2™ yields eight scales and two summary measures. The eight scales measure physical functioning, role limitations due to health, general health perceptions, vitality, social functioning, role limitations due to emotional issues, general mental health, and bodily pain. The two summary measures include the Physical Health Component Summary (PCS) and the Mental Health Component Summary (MCS). Higher scores denote better functioning and well-being.

The SF-12v2™ was selected for its brevity and ease of administration. The 12 items were selected from the SF-36 Health Survey, using forward stepwise regression analyses. The resulting form achieves multiple R^2 of 0.911 and 0.918 in predicting the SF-36 PCS and SF-36 MCS, respectively (Ware et al., 2005).

Two-week, test-retest correlations for the SF-12 PCS and the SF-12 MCS in the

general U.S. population were 0.89 and 0.76, respectively. On tests of validity involving physical criteria, the relative validity estimates for SF-12 PCS and the SF-12 MCS in comparison with the SF-36 PCS and SF-36 MCS ranged from 0.43 to 0.93 and 0.60 to 1.07, respectively (Ware et al., 2005).

The SF-12v2™ has been validated for use with a variety of medical populations such as individuals with heart disease and stroke (Lim & Fisher, 1999), fibromyalgia (Hoffman & Dukes, 2008), non-traumatic hip and knee disorders (van der Waal, Terwee, van der Windt, Bouter, & Dekker, 2005), patients with and without obesity (Wee, Davis, & Hamel, 2008), and trauma patients (Kiely, Brasel, Guse, & Weigelt, 2006). It has also been validated for use with several minority populations including Chinese immigrants (Hung, Lubetkin, Fahs, & Shelley, 2009) and the general Greek population (Kontodimopoulos, Pappa, Niakas, & Tountas, 2007).

Objective Health Status. Objective health status was assessed by asking women the following question, “In the past 5 years, has a doctor or other health care professional told you that you have any of the following health conditions?”, followed by a list of 28 medical conditions. These included diagnoses such as heart disease, stroke, chronic lung disease, obesity, anemia, hypertension, high cholesterol, cancer, and arthritis, to name a few (see Appendix B). An objective health score was calculated by totaling the number of conditions endorsed. A higher objective health status score means that the participant has more health conditions.

Social Support. Social support was measured using a subset of 9 questions from the 19-question Medical Outcomes Study Social Support Survey (MOS-SSS) (Sherbourne & Stewart, 1991) (see Appendix C). The MOS-SSS estimates both structural

and functional support. For the purpose of this study, the questions related to structural support and two items representing each of four original functional domains (tangible support, affection, emotional and informational support, positive interaction) were included. The structural support questions asked, “About how many close friends and close relatives do you have (people you feel at ease with and can talk to about what is on your mind)?” For the functional domains, participants were asked to respond to the question, “How often is each of the following kinds of support available to you if you need it?” Responses were on a five-point scale from “none of the time” to “all of the time.” Scores for the four domains were calculated by summing the items within the scale. A total functional support score was calculated by summing the eight domain items. High scores indicate higher levels of social support.

Sherbourne and Stewart (1991) report strong internal-consistency reliability with Cronbach alphas greater than 0.91 for each of the four functional support subscales and the overall support index. One-year stability coefficients are also high for all indices ranging from 0.72 to 0.78.

The MOS-SSS has been used in a number of studies assessing the role of social support in medical outcomes. Jenks-Kettmann & Altmaier (2008) used the MOS-SSS in a study of social support and depression in bone marrow transplant (BMT) patients. Social support was found to predict depression levels post-BMT. Similarly, Moskoviz, Maunder, Cohen, McLeod, & MacRae (2000) used the MOS-SSS to determine how social support contributes to quality of life after inflammatory bowel disease. Higher levels of social support were associated with high quality of life.

Depression. Mood was measured using six items from the Center for Epidemiological Studies Depression (CES-D) Scale (Radloff, 1977) (see Appendix D). The CES-D is designed to assess current levels of depressive symptomatology. According to Radloff (1977), “the symptoms are among those on which a diagnosis of clinical depression is based but which may also accompany other diagnoses (including “normal”) to some degree” (p. 385). Thus, the CES-D is not designed for diagnosis of clinical depression or for evaluating the severity of illness over the course of treatment. The six CES-D items used in this study assess the frequency of feeling depressed, of having restless sleep, of enjoying life, of having crying spells, of feeling sad, and of feeling that people disliked oneself in the past week. Items were scored on a four-point scale, ranging from “never to “most or all of the time” and participant responses were summed for a total depressive symptoms score. Higher scores indicate a higher number of depressive symptoms.

Radloff (1977) reports high internal reliability for the CES-D, with coefficient alphas ranging from .84 to .90. The 6-item abbreviated version was used in the 1998 Commonwealth Fund Surveys of Women’s Health Conditions (Collins et al., 1999; Sherbourne, C. D., Dwight-Johnson, M., & Klap, R., 2001); however, no information was provided related to its internal reliability in this form. The CES-D has been used in numerous studies of women’s health to indicate probable depression (Castilla, Bromberger, Zhang, Perel, & Matthews, 2004; Collins et al., 1999; van der Vaart, Roovers, de Leeuw, & Heintz, 2007)

Psychosocial Stress. Psychological stress was measured using the Psychosocial Profile Hassles Scale (see Appendix E). This 12-item scale asks participants to identify

the degree to which common hassles (e.g., money worries, problems with friends) were perceived as stressful during the past 12 months, using a four-point scale (none, some, moderate, severe). The scale score is a sum, with higher scores indicating greater stress. The scale was adapted from the Prenatal Psychosocial Profile Hassles Scale, used by Misra, O'Campo & Stobino (2001), which referred to stress during pregnancy. Misra et al., 2001 adopted their version of the scale from the stress subscale of the Prenatal Psychosocial Profile developed by Curry, Campbell, & Christian (1994). Misra et al. reported a Cronbach's alpha of 0.80 for their sample.

Self-Esteem. Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSE) (Rosenberg, 1965) (see Appendix F). The RSE is a 10-item self-report measure of global self-esteem. The items are answered on a four-point scale, ranging from strongly agree to strongly disagree. Five of the items are reverse scored. The scale score is a sum, with higher scores indicating higher self-esteem. The RSE was originally developed for use with adolescents, but several studies have determined it to be valid and reliable in different populations (Gray-Little, Williams, & Hancock, 1997; Martin-Albo, Nuniez, Navarro, & Grijalvo, 2007; Robins, Hendin, & Trzesniewski, 2001; Vermillion & Dodder, 2007).

Procedures

Face to face interviews were administered in participants' homes using computer-assisted-personal-interviewing (CAPI), which allowed interviewers to read and record participants' responses directly into a laptop computer. For participants who were uncomfortable with the use of technology, the interviewer read and recorded responses using a paper survey and entered the data at a later time. Interviewers were trained to

conduct themselves appropriately and to respect the sensibilities of the Amish culture (Yost et al., 2005). In addition, Amish women who worked for the Clinic for Special Children served as liaisons and accompanied interviewers in the field to assist with necessary directions and in gaining participant cooperation. The liaison helped explain the survey's purpose and process during the initial introduction. To minimize potential bias, the liaison waited outside or in the car during the actual interview. If the respondent had young children who required attention, the liaison would watch them in another room while the interview took place.

Analysis of Risk/Benefit Ratio

Data analyzed in this study were collected in 2004-2005 as part of Phase I of the Central Pennsylvania Women's Health Study (CePAWHS). No additional contact was made with participants or their families for the purpose of this study. Therefore, risk to participants was minimal.

A potential benefit of this study to participants is the likelihood of improved medical and psychological services by increasing the cultural competence of service providers. Understanding how these variables interact with each other in this unique population allows physicians and therapists to identify more quickly those patients in poor functional health and those vulnerable to psychological distress. Medical staff will then be able to provide or recommend beneficial medical or psychological interventions.

Procedures for Maintaining Confidentiality

The host institution, Franklin & Marshall College, removed participants' personal information from the data file prior to releasing it to the researcher. The researcher was not able to identify the participants in the study.

Chapter Five: Results

Internal Reliability

Cronbach's alphas were calculated for the general health Short Form-12 survey (SF-12v2™), the 8-item MOS-SSS functional support scale, the 6-item Center for Epidemiologic Studies Depression Scale (CES-D), the Rosenberg Self-Esteem Scale (RES) and the modified Psychosocial Profile Hassles Scale. Table 1 reports the coefficient estimates obtained in this study compared with those obtained in the originally published studies (Misra, O'Camp, & Strobino, 2001; Radloff, 1977; Rosenberg, 1965; Sherbourne & Stewart, 1991). Cronbach's alphas for all measures except the CES-D exceeded .70, which is satisfactory for research purposes (Nunnally and Bernstein, 1994). The developers of the SF-12v2™ do not recommend the Cronbach's coefficient alpha to estimate the reliability of the SF-12 summary measures, given the heterogeneity of the items (Ware et al., 2005). Instead, researchers recommend the alternate forms estimation method for estimating the reliability of scores for both single-item and multi-item SF-12v2™ scales. Alternative forms method could not be employed in this study.

Table 1

Comparison of Internal Consistency Estimates Between the Current Study and the Original Studies

	Internal Consistency Estimates ^a	
	Current Study	Original Study
General Health Short Form-12 Survey PCS	.80	--
Medical Outcomes Survey Social Support Scale ^b	.88	.97
Center for Epidemiologic Studies Depression Scale ^c	.64	.84 to .90
Rosenberg Self-Esteem Scale ^d	.70	.85 to .88
Psychosocial Profile Hassles Scale ^e	.70	.80

^aInternal consistency estimates were calculated using Cronbach's Alpha on all multi-item scales.

^bSherbourne & Stewart, 1991

^cRadloff, 1977

^dRosenberg, 1965

^eMisra, O'Camp, & Strobino, 2001

Scale Development

A functional health score was calculated by summing four SF-12 subscales measuring physical functioning, role limitations due to physical health, bodily pain, and general health. These subscales were included in the measure of functional health because they are weighted heaviest in the calculation of the SF-12 PCS. As Table 2 reports, functional health scores ranged from 11 to 26 ($M = 22.42$, $SD = 2.84$), with higher scores representing better functional health. The distribution of scores was non-normally distributed, with skewness of -1.24 ($SE = 0.14$) and kurtosis of 1.48 ($SE = 0.29$).

Table 2

Means and Standard Deviations for Key Measures

Measure	<i>M</i>	<i>SD</i>	Range
Functional Health	22.42	2.83	11 - 26
Social Support	37.16	3.84	22 – 40
Mood	2.61	2.40	0 - 11
Self-Esteem	18.79	2.14	12 -30
Psychosocial Stress	14.67	2.80	12- 33

Two additional health status scores, objective health and SF-12 PCS, were calculated to validate the functional health score. The objective health score was calculated by summing a participant's total number of chronic conditions. Scores ranged from 0 to 6, with a higher score indicating a higher number of physician-diagnosed chronic illnesses and infections. The overall mean objective health score was 1.34 (*SD* 1.31).

The SF-12 PCS was calculated, using all 12 items (or eight subscales) of the SF-12. PCS scores ranged from 20 to 62, with a higher score indicating better health status. The mean PCS score was 50.61 (*SD* 6.74). The SF-12 PCS score is not used to quantify health status in this study because it includes four subscales that assess mental health (vitality, social functioning, role limitations due to emotional issues, general mental health). Use of the SF-12 PCS would likely produce a stronger relationship between health status and psychological functioning, given the overlapping constructs used in the measure.

A correlation for the three constructed health status scores revealed that functional health was significantly related to objective health, $r(288) = -.28, p < .01$, two-tailed. Participants with more diagnosed chronic health conditions rate their subjective health lower than participants with fewer chronic health conditions. The newly constructed functional health score and the SF-12 PCS were also significantly related, $r(277) = .926, p < .01$, two-tailed.

Hypotheses Testing

Hypothesis 1. The hypothesis that health status and self-esteem are positively correlated in Old Order Amish women was tested and supported. An analysis using Pearson's correlation coefficient revealed that health status and self-esteem were significantly related, $r(200) = 0.23, p < .01$, two-tailed. As an Amish woman's health improves so does her self-esteem.

Hypothesis 2. The hypothesis that health status and mood are positively correlated in Old Order Amish women was tested and supported. An analysis using Pearson's correlation coefficient revealed that functional health and mood were significantly related, $r(284) = -0.22, p < .01$, two-tailed (higher mood scores indicate more depressive symptoms). As an Amish woman's functional health improves so does her mood.

Hypothesis 3. The hypothesis that health status and psychosocial stress are negatively correlated in Old Amish women was tested and not supported. An analysis using Pearson's correlation coefficient revealed no relationship between functional health and psychosocial stress, $r(283) = -0.06, ns$.

Hypothesis 4. The hypothesis that health status and self-esteem are negatively correlated in Old Order Amish women was tested and not supported. An analysis using

Pearson's correlation coefficient revealed that health status and self-esteem were significantly related but that the relationship between these variables was positive, not negative, as hypothesized, $r(200) = 0.23, p < .01$, two-tailed.

Hypothesis 5. The hypothesis that Amish women in poor health, but who have high levels of social support, have higher levels of self-esteem in comparison with those who are in poor health and have low levels of social support was tested and supported. Amish women who are in poor health but who have high levels of social support were found to have higher self-esteem when compared with Amish women in poor health with low levels of social support. Self-esteem scores were regressed on health status and social support. These two predictors accounted for 11% of the variance in self-esteem scores, which was highly significant, $F(3, 196) = 13.83, p < .01$. Both health status ($\beta = 1.56, p = .02$) and social support ($\beta = .73, p = .01$) demonstrated significant main effects on self-esteem scores. The interaction between health status and social support was also statistically significant, ($\beta = -.03, p = .05$) (see Table 3). The addition of the health status X social support interaction terms added significant incremental variance at Step 2, $\Delta R^2 = 0.02, p < .01$.

Table 3

Moderated Multiple Regression Results for Self-Esteem

Variable	Coefficient	Standard error of coefficient	Standardized coefficient	t-value	Sign.
Step 1					
Health Status	.15	.05	.21	3.10	.002**
Social Support	.14	.04	.37	3.98	.000**
Step 2					
Health Status	1.16	.50	1.57	2.29	.023*
Social Support	.73	.30	1.41	2.45	.015*
Interaction	-.03	.01	-1.85	-2.00	.047*

* $p < .05$ ** $p < .01$

Hypothesis 6. The hypothesis that Amish women who are in poor health, but who have high levels of social support, experience more positive mood in comparison with those in poor health with limited social support was tested and not supported. Amish women in poorer health with higher levels of social support did not report fewer symptoms of depression than Amish women in poorer health with lower levels of social support. Depression scores were regressed on health status and social support. These two predictors accounted for 13% of the variance in depression scores, which was highly significant, $F(2, 281) = 22.47, p < .01$). Health status ($\beta = -.96, p = .06$) demonstrated a moderate main effect on depression scores. Social support ($\beta = -.65, p = .03$) demonstrated a significant main effect on depression scores. The interaction between health status and social support was not statistically significant, ($\beta = -.02, ns$) (see Table 4). The addition of the health status X social support interaction terms explained no additional variance at Step 2.

Table 4

Moderated Multiple Regression Results for Depression

Variable	Coefficient	Standard error of coefficient	Standardized coefficient	t-value	Sign.
Step 1					
Health Status	-.169	.047	-.198	-3.561	.000**
Social Support	-.187	-.035	-.300	-5.382	.000**
Step 2					
Health Status	-.960	.517	-1.130	-1.858	.064
Social Support	-.653	.305	-1.049	-2.141	.033*
Interaction	.021	.014	-1.243	1.538	.125

* $p < .05$ ** $p < .01$

Hypothesis 7. The hypothesis that Amish women who are in poor health, but who have high levels of social support experience less psychosocial stress in comparison with those in poor health with limited social support was tested and not supported. Amish women in poorer health with higher levels of social support did not report less psychosocial stress when compared with Amish women in poorer health with lower levels of social support. Stress scores were regressed on health status and social support. These two predictors accounted for 4% of the variance in depression scores, which was highly significant, $F(2, 281) = 7.44, p < .01$). Neither health status ($\beta = .24, ns$) nor social support ($\beta = .01, ns$) demonstrated significant main effects on self-esteem scores. The interaction between health status and social support was also not statistically significant, ($\beta = -.01, ns$) (see Table 5). The addition of the health status X social support interaction terms explained no additional variance at Step 2.

Table 5

Moderated Multiple Regression Results for Stress

Variable	Coefficient	Standard error of coefficient	Standardized coefficient	t-value	Sign.
Step 1					
Health Status	-.042	.058	-.043	-.731	.465
Social Support	-.159	.043	-.218	-3.721	.000
Step 2					
Health Status	.238	.636	.241	.374	.709
Social Support	.006	.375	.009	.017	.987
Interaction	-.007	.017	-.377	-.443	.658

Chapter Six: Discussion

Summary and Significance of the Results

This study tested seven hypotheses. The first four hypotheses examined the relationship between health status and self-esteem, depressed mood, and psychosocial stress. Two of these four proposed hypotheses were supported. Results indicate that health status has an identifiable relationship with self-esteem (Hypothesis 1) and depressed mood (Hypothesis 2) in Old Order Amish women. In each case, those in better health evidenced higher self-esteem and better mood than those in poor health. Some may argue that the correlation coefficients for the first two hypotheses are weak; the correlation coefficients for Hypotheses 1 and 2 are 0.23 and -0.22, respectively, which explains about 5% of the variation in the dependent variable. It is often the case that large sample sizes produce significant findings even when the correlation is low (Spencer, 1995), but there is ample evidence in medical research to suggest findings with low correlations can have a substantial impact on health outcomes.

There was no identifiable relationship between health status and psychosocial stress (Hypothesis 3). A potential reason for this finding may be the measure of stress used in the study. The Psychosocial Profile Hassles Scale is a 12-item scale that asks participants to identify the degree to which common hassles were perceived as stressful during the previous 12 months. Among the list of stressors are daily hassles that rarely occur in the Amish population. For example, less than 2% of the Amish participants rated concerns about food, shelter, healthcare or transportation or having to move, as moderate or severe stressors; less than 5% rated worries about money as a moderate or severe stressor, and no Amish participant identified problems with alcohol or drugs, problems

with friends or with neighborhood crime or problems with safety as moderate or severe stressors. Table 6 shows the frequency of responses for each item in this scale.

Additionally, the distribution of scores on this measure is narrow, regardless of health status and it is not until the groups are segmented (e.g., high or low social support) that these differences emerge.

Table 6

Frequency of Responses to the Psychosocial Profile Hassles Scale

Item	No Stress	Some Stress	Moderate Stress	Severe Stress
Worries about food, shelter, health care, and transportation	85%	14%	1%	1%
Money worries, such as paying bills	61%	34%	4%	1%
Having to move, either recently or in the future	90%	8%	2%	0%
Recent loss of a loved one	81%	15%	3%	1%
Illness of a family member or close friend	73%	20%	5%	2%
Pregnancy	73%	21%	6%	0%
Sexual, emotional, or physical abuse	94%	5%	0%	1%
Problems with alcohol or drugs	96%	4%	0%	0%
Work or job pressures	87%	11%	2%	0%
Problems with your friends	91%	8%	0%	0%
Feeling generally “overloaded”	50%	43%	7%	1%
Crime or safety in your neighborhood	96%	4%	0%	0%

The relationship between health status and self-esteem was consistent with findings from studies of the general population rather than in the context of the collectivist society (Hypothesis 4). Amish women in better health evidenced higher self-esteem than those in poorer health. Given the fact that the Amish reside in a collectivist society, it was proposed that Amish women in better health would actually report lower levels of self-esteem. Amish children are taught at a very young age to “hold others in higher esteem than themselves” (Kraybill, 2008, p. 13). Accordingly, one would expect individuals in collectivist cultures to report lower levels of self-esteem. Diener and Diener (1995) believed that “in cultures in which the collective is stressed, feeling good about oneself may be a sign of maladjustment” (p. 653). Diener and Diener (1995) found that the relationship between self-esteem and life satisfaction differed between individualistic societies and collectivistic societies. The relationship between these variables was stronger in individualistic societies in which people focus on their own personal attributes. In individualist societies, feeling good about oneself is an indication of mental adjustment. The current research finding suggests that although the Amish are a collective society, the structure of the society cannot remove the individual from the equation.

The final three hypotheses tested whether or not social support would moderate the relationship between health status and psychological functioning. It was hypothesized that high levels of social support would act as a buffer against the negative effects of poor or failing health. One of the three hypotheses was supported. As hypothesized, the relationship between health status and self-esteem was moderated by social support (Hypothesis 5). Main effects were found both for health status and for social support on

self-esteem scores. There was also a significant health status X social support interaction. This suggests that social support has a beneficial effect on self-esteem, and that the beneficial effects of social support may be operating through two different processes. The significance of the health status X social support interaction suggests that social support protects one's self-esteem when faced with the stresses of poor health (i.e., buffering model). The main effect suggests that social support may have a beneficial effect on one's self-esteem regardless of health status (i.e., main-effect model) (Cohen and Wills, 1985). Health status and social support accounted for 11% of the variance in self-esteem scores. The health status X social support interaction accounted for an additional 2% (13% total) of the variance in self-esteem scores. Some may argue that a 2% increase does not significantly contribute added predictive value; however, McClelland and Judd (1993) believe even a 1% increase should be considered important, given how difficult it can be to find moderator effects in field studies.

Social support was not found to moderate the relationship between health status and depression (Hypothesis 6). A moderate main effect was found between health status and depression. A significant main effect was found between social support and depression. No health status X social support interaction was found. This suggests that social support may have a beneficial effect on mood, regardless of health status; however, it does not make one less susceptible to developing depression when health status declines.

Social support was also not found to moderate the relationship between health status and psychosocial stress (Hypothesis 7). Neither health status nor social support demonstrated significant main effects on self-esteem scores. There was no health status X

social support interaction effect.

The lack of support for Hypotheses 6 and 7 may be due to several reasons. Historically, interactions have been more difficult to detect in field studies, compared with experimental studies (McClelland & Judd, 1993) and these tend to be reported less frequently in regression analysis than in tests of analysis of variance (Venter & Maxwell, 2000). Several researchers have found “the product term used to test interaction effects [to be] less reliable than the corresponding main effect variables” (Venter & Maxwell, 2000, p. 174). Thus, measurement errors may reduce power and make finding significant interaction effects difficult to detect (Evans, 1991; McClelland & Judd, 1993). Sample size and sample composition can also significantly reduce the likelihood that the interaction would be significant. According to Cohen & Wills (1985), “results for more homogenous populations tend to be less marked than those found with general population samples, where the range of stress is usually considerable” (p. 317). The Amish are a very homogenous population. Although a range of scores was reported for all measures, the range is fairly moderate. As reported in Table 2, no participant reported extremely poor scores on any of the measures.

Contributions of the Study

Results of this study lend support to the stress-buffering hypothesis, which states that having a particular resource (e.g., social support) protects a person against the adverse effect of stressful events or experiences (e.g., illness, poor health). According to the buffering hypothesis, people with little social support are more susceptible to the adverse outcomes of poor health than people with high levels of support. This was supported by the current research findings. Participants with lower levels of social

support were more vulnerable to negative consequences typically associated with poor health. These participants had lower self-esteem, more depressed mood, and higher levels of stress compared with participants with high self-esteem.

This study contributes to the understanding of a population that has received scant empirical study within the psychological literature. This study shows that the psychological well-being of Amish in poor health is associated with the social support they receive and it implies that engaging the community's organic interconnections may be tremendously beneficial in patient treatment. Having a better understanding of psychological functioning within the Amish is also important because they rely almost exclusively on non-Amish to provide their treatment; there are few providers who come from within the culture because Amish doctrine does not allow its members to pursue higher education or advanced training; they therefore rely on medical and psychological services provided by the outside world (Hostetler, 1993). Understanding the Amish is also important because they are the fastest growing population in Lancaster County, Pennsylvania (Kraybill, 2008). This rate of growth means that the Amish will encounter the English health system more and more frequently. Concomitantly, the population growth within the Amish population is forcing changes to their lifestyle and culture. The Amish are forced, increasingly, to work outside of their community in order to support their families; the proportion of Amish who make their primary income from farming is declining (Graham & Cates, 2006; Greksa & Korbin, 1997; Kraybill, 2008). The information provided by this study will allow us to understand more fully the effect that the changing Amish lifestyle has on their psychological well-being.

How can we better serve the Amish?

Over the past twenty years, efforts have been made to improve service delivery to the Amish. These efforts include improved understanding of cultural issues that impact rapport building and drive help-seeking behavior; they also include addressing practical issues such as language barriers, transportation, and confidentiality (Cates, 2005; Cates & Graham, 2002; Hostettler, 1993; Weyer et al., 2003). This research suggests that therapists might improve their treatment outcomes by engaging the social support system that exists within the culture. The individualist, western model of patient care suggests that patients are responsible for their own psychological and physical well-being unless they are too debilitated to make decisions for themselves. The Amish are different because the strong bonds within their community imply significant community responsibility for well-being, and therapists will better serve these patients if they recognize the importance of these supports and welcome them as part of treatment.

There is no disputing the fact that the structure of the Amish society cultivates strong social networks. Major life activities, such as work, play, education, and worship take place locally (Kraybill, 2008). These activities are shared with family members and immediate neighbors and often these connections overlap. As Kraybill (1989) states, “Staying home is not a dreaded experience of isolation for the Amish. It means being immersed in the chatter, work, and play of the extended family” (p. 75). When needed (e.g., in case of fire, illness, or death) family members take over daily chores, prepare food, care for young children, and offer prayers and words of comfort. Furthermore, there is social equity among the Amish. The Amish society is culturally homogenous (Kraybill, 2008). Elements of social status that divide the western world, such as education, income,

and occupation are absent in Amish communities.

Even, “spirituality has a communal rather than an individualistic accent” (Kraybill, 2008, p. 15). Amish prayer is rarely offered in public. Instead, the Amish recite prayers such as the Lord’s Prayer. And, prayer before and after meals is often silent. The Amish frequently attend religious services, but these services are not held in a church. Religious services are held on a rotating schedule at the home of congregation members. Meeting in the homes of congregation members creates a natural limit on the number of people in the congregation, keeping the experience small and informal. In addition to using this time to worship, the Amish share a meal and spend time visiting with one another.

Amish spirituality affects attitudes toward sickness, health, and preventive care. According to Hostettler (1993), the Amish believe, “God created the human body. It should not be tampered with. Medicine may help, but it is God who heals” (p. 323). This should not be taken to mean the Amish do not believe in a sense of personal responsibility for their health and well-being.

Given the Amish belief in God and strong use of prayer, one could question whether or not social support is the mediating factor between health and psychological functioning or something else. Research suggests that prayer has a positive impact on health outcomes (King, Cumming, & Whetstone, 2005; Koenig, Smiley, & Gonzales, 1988; Walsh, 1980). It may also simply be the case that the religious practices of the Amish serve to reinforce the community’s network of support.

Limitations of the Study

Several limitations should be considered when interpreting these findings. First, the population of this research is very narrow, Old Order Amish women between the ages of 18 and 45 residing in Lancaster County, Pennsylvania. The ability to generalize the findings from this study to other diverse groups and cultures or even the broader Amish population is limited. Because of early settlement patterns, Amish communities are distinct from each other. Within the Amish population, there are separate inbreeding communities, or demes, with different hereditary lines resulting in different genetic composition (Hostettler, 1993). Furthermore, Amish church districts within the same settlements have different customs related to the use of electricity, indoor plumbing, etc. (Kraybill, 2008). It is these differences that may account for some of the variation in obesity rates reported among the Amish (Levinson et al., 1989; Miller et al., 2007).

Second, there is a paucity of research with the Amish population and, presently, no psychological measures have been validated within this population. Values on these measures should be interpreted with caution. For example, the Psychosocial Profile Hassles Scale used in this study may not have been precise enough to assess properly, the level of stress experienced by the Amish, given the fact that several of the daily hassles included rarely occur in the Amish population. Efforts to clarify the Amish interpretation of concepts like depression were made by researchers from Franklin & Marshall College in 2008, when they conducted a follow-up survey to their original CePAWHS survey (Miller et al., 2007). When asked, “What do you think it means when someone says they feel depressed?”, the majority of Amish women responded feeling sad, blue, down, not happy, or downhearted (Stuart, 2009). Reasons for feeling depressed included demands

of childbirth related to care-giving responsibilities and hormonal changes, workload and fatigue, and illness or death of friends or family members. These responses are similar to the dominant culture's views about depression.

Finally, there are several qualities of the Amish community that may increase response bias. Participation rates were quite high, because Amish women generally tend to be compliant and eager to please (Yost et al., 2005). This willingness to comply may have increased socially desirable responses. Participants who may not have felt comfortable with the sensitive nature of the survey could have agreed to take it anyway. Thus, these women might hesitate to report impaired physical or emotional functioning.

Directions for Future Research

Although the current research establishes the idea that there is an identifiable relationship between health status and self-esteem and mood, some may argue the relationship is small. Moreover, the current research failed to identify a relationship between health status and psychosocial stress. This may be due largely to the measures selected and their lack of validation within this population. Although researchers are moving towards an understanding of how Amish women define concepts such as depression and self-esteem, further efforts are needed. Research on how the Amish define these psychological concepts and efforts to develop or validate psychological measures within this population should be undertaken. It should also be expanded to include Amish men. Given the fact that Amish men and women have distinct roles within the community and the family, it is possible that their definitions and interpretations of these concepts will differ.

Second, additional research should allow for comparisons to be made between the Amish and the non-Amish. The amount of social support among the Amish and the collectivist nature of its community make it possible that the absence of social support could be far more harmful to the Amish than it would be to the non-Amish. Further research should attempt to see if this is the case.

Finally, the current study examines the independent effect of social support among those in poor health on depression, self-esteem, and psychosocial stress. Additional research should identify the interactions between and among these variables. It is possible that a multivariate analysis will reveal that social support plays an even greater role in reducing the various psychological consequences of poor health than this study has identified. It is likely that those in the low social support group may score lower on all psychological measures than those in the higher social support group.

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Appendices

Appendix A

Short Form-12 Survey (SF-12v2™)

1. In general, would you say your health is excellent, very good, good, fair, or poor?

- 1 Excellent
- 2 Very good
- 3 Good
- 4 Fair
- 5 Poor

2a. Now I'm going to read a list of activities you might do during a typical day. As I read each item, please tell me if your health now limits you a lot, limits you a little, or does not limit you at all in these activities... moderate activities such as moving a table, pushing a vacuum cleaner, bowling, or playing golf. Does your health now limit you a lot, limit you a little, or not limit you at all? [IF R SAYS SHE DOES NOT DO ACTIVITY, PROBE: Is that because of your health?]

- 1 Yes, limited a lot
- 2 Yes, limited a little
- 3 No, not at all

2b. Climbing several flights of stairs. Does your health now limit you a lot, limit you a little, or not limit you at all? [IF R SAYS SHE DOES NOT DO ACTIVITY, PROBE: Is that because of your health?]

- 1 Yes, limited a lot
- 2 Yes, limited a little
- 3 No, not at all

3a. The following two questions ask about your physical health and your daily activities. During the past four weeks, how much of the time have you accomplished less than you would like as a result of your physical health? All of the time, most of the time, some of the time, a little of the time, or none of the time?

- 1 All of the time
- 2 Most of the time
- 3 Some of the time
- 4 A little of the time
- 5 None of the time

3b. During the past four weeks, how much of the time were you limited in the kind of work or other regular daily activities you do as a result of your physical health? All of the time, most of the time, some of the time, a little of the time, or none of the time?

- 1 All of the time
- 2 Most of the time
- 3 Some of the time

- 4 A little of the time
- 5 None of the time

4a. The following three questions ask about your emotions and your daily activities. During the past four weeks, how much of the time have you accomplished less than you would like as a result of any emotional problems, such as feeling depressed or anxious? All of the time, most of the time, some of the time, a little of the time, or none of the time.

- 1 All of the time
- 2 Most of the time
- 3 Some of the time
- 4 A little of the time
- 5 None of the time

4b. During the past four weeks, how much of the time did you do work or other regular daily activities less carefully than usual as a result of any emotional problems, such as feeling depressed or anxious? All of the time, most of the time, some of the time, a little of the time, or none of the time?

- 1 All of the time
- 2 Most of the time
- 3 Some of the time
- 4 A little of the time
- 5 None of the time

5. During the past four weeks, how much did pain interfere with your normal work (including both work outside the home and housework)? Not at all, a little bit, moderately, quite a bit, or extremely?

- 1 Not at all
- 2 A little bit
- 3 Moderately
- 4 Quite a bit
- 5 Extremely

6a. The next questions are about how you feel and how things have been with you during the past four weeks. As I read each statement, please give me the one answer that comes closest to the way you have been feeling: is it all of the time, most of the time, some of the time, a little of the time, or none of the time. How much of the time during the past four weeks have you felt calm and peaceful? (READ RESPONSE CHOICES ONLY IF NECESSARY)

- 1 All of the time
- 2 Most of the time
- 3 Some of the time
- 4 A little of the time
- 5 None of the time

6b. How much of the time during the past four weeks did you have a lot of energy?

- 1 All of the time
- 2 Most of the time
- 3 Some of the time
- 4 A little of the time
- 5 None of the time

6c. How much of the time during the past four weeks have you felt downhearted and depressed?

- 1 All of the time
- 2 Most of the time
- 3 Some of the time
- 4 A little of the time
- 5 None of the time

7. During the past four weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)? All of the time, most of the time, some of the time, a little of the time, or none of the time?

- 1 All of the time
- 2 Most of the time
- 3 Some of the time
- 4 A little of the time
- 5 None of the time

Appendix B

Chronic Health Conditions

In the *past 5 years*, has a doctor or other health care professional told you that you have any of the following health conditions?

	<u>YES</u>	<u>NO</u>
a. Hypertension or high blood pressure	1	2
b. High cholesterol	1	2
c. Heart disease, like a heart attack or angina	1	2
d. A stroke	1	2
e. Blood clot	1	2
f. Epilepsy or seizure disorder	1	2
g. Asthma	1	2
h. Chronic lung disease, chronic bronchitis or emphysema	1	2
i. Obesity or overweight	1	2
j. Anemia, or low iron	1	2
k. Eating disorder, like anorexia or bulimia	1	2
l. Anxiety or depression	1	2
m. Cervical cancer or precancerous cervix	1	2
n. Other cancer	1	2
o. Arthritis or rheumatoid arthritis	1	2
p. Thyroid problems	1	2
q. Urinary tract infection, or UTI	1	2
r. Endometriosis	1	2
s. Chlamydia	1	2
t. Herpes	1	2
u. Gonorrhea	1	2
v. Syphilis	1	2
w. Bacterial vaginosis	1	2
x. Vaginal yeast infection	1	2
y. HIV or AIDS	1	2
z. Hepatitis B	1	2
aa. Pelvic inflammatory disease, or PID	1	2
bb. Diabetes (other than during pregnancy)	1	2

Appendix C

MOS Social Support Survey

Next are some questions about the support that is available to you. About how many close friends and relatives do you have whom you feel at ease with and can talk to about what is on your mind?

NUMBER :	_____
DK	88
REFUSED	99

People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kinds of support available to you if you need it? None of the time (1), a little of the time (2), some of the time (3), most of the time (4), or all of the time (5)

- a. Someone to take you to the doctor if you need it
- b. Someone who shows you love and affection
- c. Someone to confide in or talk to about yourself or your problems
- d. Someone to get together with for relaxation
- e. Someone to help with daily chores if you were sick
- f. Someone to share your private worries and fears with
- g. Someone to do something enjoyable with
- h. Someone to love and make you feel wanted

Appendix D

6-Item Center for Epidemiologic Studies Depression Scale

A13. I am going to read you a list of ways you might have felt or behaved recently. How often have you felt this way during the *past week* ? Never (0), rarely (1), some of the time (2), or most of the time (3)

- a. I felt depressed.
- b. My sleep was restless.
- c. I enjoyed life.
- d. I had crying spells.
- e. I felt sad.
- f. I felt that people disliked me.

Appendix E

Psychosocial Profile Hassles Scale

Now I am going to ask about some things that might have made you feel stressed or upset in the *past 12 months*. Please tell me how much of a hassle the following things were for you – did they cause no stress (1), some stress (2), moderate stress (3), or severe stress (4) in the past 12 months?

- a. Worries about food, shelter, health care, and transportation
- b. Money worries, like paying bills
- c. Having to move, either recently or in the future
- d. Recent loss of a loved one
- e. Illness of a family member or close friend
- f. Pregnancy
- g. Sexual, emotional, or physical abuse
- h. Problems with alcohol or drugs
- i. Work or job problems
- j. Problems with your friends
- k. Feeling generally “overloaded”
- l. Crime or safety in your neighborhood

Appendix F

Rosenberg Self-Esteem Scale

For each of the following statements indicate the extent to which you agree -- strongly agree (3), agree (2), disagree (1), or strongly disagree (0):

- a. I feel that I am a person of worth, at least on an equal basis with others
- b. I feel that I have a number of good qualities
- c. All in all, I am inclined to feel that I am a failure
- d. I am able to do things as well as most other people
- e. I feel that I do not have much to be proud of
- f. I take a positive attitude toward myself
- g. On the whole, I am satisfied with myself
- h. I wish I could have more respect for myself
- i. I certainly feel useless at times
- j. At times, I think I am no good at all